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09/525,021	03/14/2000	Katsuyuki Kobayashi	35.G2556	8408

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EXAMINER	
NGUYEN, KEVIN M	

ART UNIT	PAPER NUMBER
2674	

DATE MAILED: 03/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/525,021	KATSUYUKI KOBAYASHI	
	Examiner	Art Unit	
	Kevin M. Nguyen	2674	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 December 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-158 and 165-229* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-158 and 165-229* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 June 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

The request for reconsideration filed on 12/18/2003 has been fully considered but they are not persuasive. The rejections of claims 1-158 and 165-229 are maintained.

The drawings and substitute specification were received on 6/17/2003. These drawings are acknowledged and approved.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-47, 50-75, 87-115, 127-158 and 165-228 are rejected under 35 U.S.C. 102(b) as being anticipated by Elrod et al (US 5,341,155).

2. As to claims 1, 50, Elrod et al teach a system associating a method which includes a coordinate (X, Y), a screen surface (20), the light pens (22) having four button switches;

a detection device (28), a plurality of photoelectric conversion elements (76, 78, 80, 82), a predetermined physical array (+X, -X, +Y, -Y);

different signal generating means (T, F, M, R), the light source cycle is at a first point "button switch ON" being at a higher intensity than a second point "button switch OFF";

threshold setting means (120, 122, 124, 126) (column 7, lines 15-22);

selecting means (118), and difference output means (100, 102, 104, 106) (see figure 3, column 5, line 47 through column 7, line 34).

As to claims 2, 51, Elrod et al teach calculation means (112), coordinate output means (116) (column 7, lines 23-34).

As to claims 3, 52, Elrod et al teach different signal detecting means having the largest different signal "C" (figure 3a), the threshold setting means (120, 122, 124, 126) sets the different signals of the predetermined number of photoelectric conversion elements adjacent to the photoelectric conversion element having the largest different signal (see column 14, lines 1-13).

As to claims 4, 53, Erod et al teach the threshold setting means sets the threshold value "smooth delta" based on different signals corresponding to photoelectric conversion elements situated on both sides of the photoelectric conversion element having the largest different signal (see column 18, lines 2-16).

As to claims 5, 54, Elrod et al teach the threshold setting means sets the threshold value "smooth delta" based on different signals corresponding to two photoelectric conversion elements "Xs, Ys" equally spaced from the photoelectric conversion element having the largest different signal "18" (column 18, lines 2-16).

As to claims 6, 55, Elrod et al teach the threshold setting means sets the threshold value "smooth delta" at different signals corresponding to the smaller of different signal of the two photoelectric conversion elements "Xs,Ys" equally spaced from the photoelectric conversion element having the largest different signal "18" (see figure 19, column 18, lines 2-5).

As to claims 7, 56, Elrod et al teach the threshold setting means sets the threshold value "smooth delta" at different signals corresponding to the greater of different signal of the two photoelectric conversion elements "Xs,Ys" equally spaced from the photoelectric conversion element having the largest different signal "18" (see figure 19, column 18, lines 5-7).

As to claims 8, 57, Elrod et al teach wherein said threshold setting means sets the threshold value based on different signals corresponding to the 2m identified "X=last$_x$+smoothdelta, X=last$_x$-smoothdelta" photoelectric conversion elements and the largest different (column 18, lines 46-60).

As to claims 9, 58, Elrod et al teach selection means 118 selects a series of consecutive photoelectric conversion elements including the photoelectric conversion element having the maximum different signal as the effective photoelectric conversion elements (a maximum value in table 2).

As to claims 10, 59, Elrod et al teach calculation means calculates (112) a coordinate value based on the position of centroid (column 6, lines 15-21).

As to claims 11, 60, Elrod et al teach integration means (104); the threshold setting means (120, 122, 124, 126) sets a threshold values based on different signals calculated from the integrated output values of the photoelectric conversion elements (see figure 3, column 7, lines 9-23).

As to claims 12, 14, 61, 63, Elrod et al teach threshold setting means (120, 122, 124, 126) detects the number of times "frequencies" that the integration are performed by the integration means (104) (see figure 3, column 6, lines 56-58).

As to claim 13, 62, Elrod et al teach threshold setting means (120, 122, 124, 126) controls the integration means (104) to perform the integrations until the value of the largest difference signal exceeds a predetermined values "delta(i)" (see figure 15, column 15, lines 37-55).

As to claims 15-19, 64-68, Elrod et al teach skim means (sensor "-X, -Y") for reducing the output from the photoelectric conversion elements when the output from the photoelectric conversion elements at the second points in the cycle of variation of the light source exceeds a predetermined value (signal "-X, -Y" has a reduced amplitude going through op-amp 86, 90, 94, 98, see figure 3, column 6, lines 29-46).

As to claim 20, 69, Elrod et al teach the light source 22 emitting a light spot on the screen surface 20 (see figure 8, column 10, lines 11-22).

As to claims 21-39, 70, Elrod et al teach the light pen 22 being adjacent on the screen surface 20 (see figure 5).

As to claims 40, 41, 71, 72, Elrod et al teach the detection means 28 receives light diffused through the screen surface from the pointer 22 (see figure 3).

As to claims 42, 43, 73, 74, Elrod et al teach the cyclical variation of the intensity of the light source comprises alternating the intensity of the light source 22 between a first and second level (button switches T, F, M, R make the intensity of light on and off).

As to claims 44, 75, Elrod et alt teach the dimensions of the light source are arranged so that light emitted from the light source 22 is incident light on at least two photoelectric conversion elements of the plurality of photoelectric conversion elements of said detection device 28 (see figure 3).

As to claims 90-115, Elrod et al teach a computer (29) including a data carrier carrying processor-implementable instructions for carrying a method (see column 19, lines 26-51).

3. As to claims 45-47, 87-89, 127-129, Elrod et al teach a system associating a method which includes a coordinate (X, Y), a screen surface (20), the light pens (22) having four button switches;

a detection device (28), a plurality of photoelectric conversion elements (76, 78, 80, 82), a predetermined physical array (+X, -X, +Y, -Y);

different signal generating means (T, F, M, R), the light source cycle is at a first point "button switch ON" being at a higher intensity than a second point "button switch OFF";

threshold setting means (120, 122, 124, 126) (column 7, lines 15-22);

selecting means (118), and coordinates output means (116) (see figure 3, column 5, line 47 through column 7, line 34).

4. As to claims 130-138, Elrod et al teach a system associating a method which includes a coordinate (X, Y), a screen surface (20), the light pens (22) having four button switches;

a detection device (28), a plurality of photoelectric conversion elements (76, 78, 80, 82), a predetermined physical array (+X, -X, +Y, -Y);

different signal generating means (T, F, M, R), the light source cycle is at a first point "button switch ON" being at a higher intensity than a second point "button switch OFF";

threshold setting means (120, 122, 124, 126) (column 7, lines 15-22);

selecting means (118), and coordinates output means (116) (see figure 3, column 5, line 47 through column 7, line 34).

As to claims 139-141, Elrod et al teach a computer (29) including a data carrier carrying processor-implementable instructions for carrying a method (see column 19, lines 26-51).

5. As to claims 142-158, 165-191, Elrod et al teach a system associating a method which includes a coordinate (X, Y), a screen surface (20), the light pens (22) having four button switches;

a detection device (28), a plurality of photoelectric conversion elements (76, 78, 80, 82), a predetermined physical array (+X, -X, +Y, -Y);

different signal generating means (T, F, M, R), the light source cycle is at a first point "button switch ON" being at a higher intensity than a second point "button switch OFF";

threshold setting means (120, 122, 124, 126) (column 7, lines 15-22);

selecting means (118), and coordinates output means (116) (see figure 3, column 5, line 47 through column 7, line 34).

As to claims 192-213, Elrod et al teach a computer (29) including a data carrier carrying processor-implementable instructions for carrying a method (see column 19, lines 26-51).

6. As to claims 214-228, Elrod et al teach a coordinate input apparatus using with computer (29) including processor-implementable instructions for carrying a method

(see column 19, lines 26-51), a screen surface (20), the light pens (22) having four button switches;

a detection device (28), a plurality of photoelectric conversion elements (76, 78, 80, 82), a predetermined physical array (+X, -X, +Y, -Y);

different signal generating means (T, F, M, R), the light source cycle is at a first point "button switch ON" being at a higher intensity than a second point "button switch OFF";

threshold setting means (120, 122, 124, 126) (column 7, lines 15-22);

selecting means (118), and coordinates output means (116) (see figure 3, column 5, line 47 through column 7, line 34).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claim 229 is rejected under 35 U.S.C. 103(a) as being unpatentable over Elrod et al in view of Shaffer et al (US 6,050,690).

As to claim 229, Elrod et al teach all of the claimed limitation of claim 226, except for "the data carrier is a signal downloaded over a communication network." However, Shaffer et al teach a related system which includes the data carrier is a signal downloaded over a communication network 142 (see figure 10, column 8, line 64 to column 7, line 9). It would have been obvious to a person of ordinary skill in the art at

the time of the invention to utilize the data carrier is a signal downloaded over a communication network taught by Shaffer et al for Elrod et al's system because this would provide the additional information for a user to view at other locations (column 9,lines 9-12 of Shaffer).

9. Claims 48, 49, 76-86, 116-126 are rejected under 35 U.S.C. 103(a) as being unpatentable over Elrod et al in view of Hauck et al (US 5,504,501).

As to claims 48, 49, Elrod et al teach all of the claimed limitation of claim 45, except for the threshold setting means sets first and second threshold values. Hauck et al teach control means controls the selection means so that the selection means selects the effective photoelectric conversion elements based on a comparison between the first threshold the a second value "120, 121" (column 8, lines 1-14). It would have been obvious to a person of ordinary skill in the art at the time of the invention to utilize the threshold setting means sets first and second threshold values "120, 121" taught by Hauck et al for Elrod et al's system because this would improve the precise and accurate of the light pot being displayed on the projected screen (column 1, lines 25-30 of Hauck et al).

10. As to claims 76, 86, Elrod et al teach a system associating a method which includes a coordinate (X, Y), a screen surface (20), the light pens (22) having four button switches;

a detection device (28), a plurality of photoelectric conversion elements (76, 78, 80, 82), a predetermined physical array (+X, -X, +Y, -Y);

different signal generating means (T, F, M, R), the light source cycle is at a first point "button switch ON" being at a higher intensity than a second point "button switch OFF" (see figure 3, column 5, line 47 through column 7, line 34).

Elrod et al fail to teach setting first and second threshold values of the difference signals; determining whether a selection of effective difference signal is executed on the basis of the first and second threshold values. However, Hauck et al teach a related system which includes setting first and second threshold values of the difference signals "120, 121"; determining whether a selection of effective difference signal is executed on the basis of the first and second threshold values "120, 121" (figure 7, column 8, lines 1-14). It would have been obvious to a person of ordinary skill in the art at the time of the invention to utilize setting first and second threshold values "120, 121" for the different signals; determining whether a selection of effective difference signal is executed on the basis of the first and second threshold values "120, 121" taught by Hauck et al for Elrod et al's system because this would improve the precise and accurate of the light spot being displayed on the projected screen (column 1, lines 25-30 of Hauck et al).

As to claims 77-79, 85, Hauck et al teach detecting the photoelectric conversion element having the largest difference signal "115", the second threshold value "117" (see figure 7, column 8, lines 1-14).

As to claim 80, Hauck et al teach the second threshold value "117" is set on both sides of the largest different signal (see figure 7).

As to claim 81, Elrod et al teach the threshold value is set equally spaced for the photoelectric conversion element having a largest difference data (figure 4).

As to claims 82, 83, Hauck et al teach the threshold value "117" is set based on the difference signal corresponding to the smaller/greater difference signal of the two photoelectric conversion elements equally spaced for the photoelectric conversion element having a largest difference data (figure 7).

A to claim 84, Hauck et al teach identifying means, 2m of consecutive photoelectric conversion elements "104, 105, 107, 108" on either sides or both side of the largest value (106), the threshold setting means "120, 121" (see figures 6 and 7, column 7, line 51 to column 8, lines 14).

As to claims 116-126, Elrod et al teach a computer (29) including a data carrier carrying processor-implementable instructions for carrying a method (see column 19, lines 26-51).

Response to Arguments

11. Applicant's arguments filed 12/18/2003 have been fully considered but they are not persuasive.

In response to applicant's argument that claim 1 recites "difference signal generating means for generating, for each photoelectric conversion element, a difference signal corresponding to a difference between the output of the photoelectric conversion element when the light source cycle is at a first point and an output of the photoelectric conversion element when the light source cycle is at a second point." This argument is not persuasive because Elrod's invention teaches as follow:

the position sensing photodiode 28 includes four (two opposed pairs) electrodes 76(X+), 78(X-), 80(Y+) and 82(Y-), each of which generates a current signal as a

function of the light intensity and position of the centroid of the light spot projected thereon. If several pens are being used, they simultaneously project optical signals chopped at different frequencies (col. 6, lines 15-21).

Then both signals pass to standard sum and difference amplifiers 88 and 90 for determining location. The sum of X+ and X- will always have the same phase relationship to the pen modulation and will be a fairly large signal, while the difference can either be in phase (on one side of the center of the detector) or 180.degree. out of phase (on the opposite side of center) (col. 6, lines 34-40).

Since the Xsum, Xdiff, Ysum, and Ydiff signals are all generated by a single light pen, it is sufficient to generate a single timing signal (E) for all of these signals. The output signal (F), from the sample and hold circuits, is a stair-stepped DC voltage indicative of the amplitude of the Xsum and Xdiff sine wave signals (C and C'), and representative of the light spot position. RC filters 108 and 10 remove noise from the DC signal (F) (col. 7, lines 1-8).

Since both sum and difference signals vary linearly with respect to the intensity of the light spot, a division step will yield generalized input data coordinate values (Xv and Yv):

Xv=Xdiff/Xsum and Yv= Ydiff/Ysum

(col. 7, lines 27-34).

For these reasons, the rejections based on Elrod et al have been maintained.

Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Kevin M. Nguyen** whose telephone number is **703-305-6209**. The examiner can normally be reached on MON-THU from 9:00-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Richard A Hjerpe** can be reached on **703-305-4709**.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered response should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Kevin M. Nguyen
Patent Examiner
Art Unit 2674

KN
February 26, 2004

XIAO WU
PRIMARY EXAMINER